

Alcohol Abuse and Dependence

Summary of Methods and Data for Estimate of Costs of Illness

- | | |
|---|---------------------|
| 1. Estimated Total Economic Cost | \$184.6 billion |
| Estimated Direct Cost | \$ 50.4 billion |
| Estimated Indirect Cost | \$134.2 billion |
| Reference Year | 1998 |
| IC Providing the Estimate | NIAAA |
| | |
| Direct Costs Include: Other related nonhealth costs | Yes, \$24.1 billion |
| Indirect Costs Include: | |
| Mortality costs | Yes, \$36.5 billion |
| Morbidity costs - Lost workdays of the patient | Yes, \$ 1.9 billion |
| Morbidity costs - Reduced productivity of the patient | Yes, \$85.7 billion |
| Lost earnings of unpaid care givers | No |
| Other related nonhealth costs | Yes, \$10.1 billion |
| Interest Rate Used to Discount Out-Year Costs | 6 % |
| | |
| 2. Category code(s) from the International Classification of Diseases, 9th Revision, Clinical Modification, (ICD-9-CM) for all diseases whose costs are included in this estimate: <u>291; 303 ; 305.0.</u> | |
| | |
| 3. Estimate Includes Costs: | |
| Of related conditions beyond primary, strictly coded ICD-9-CM category | Yes |
| Attributable to the subject disease as a secondary diagnosis | Yes |
| Of conditions for which the subject disease is an underlying cause | Yes |
| 4. Population Base for Cost Estimate (Total U.S. pop or other) | Total U.S. pop. |
| 5. Annual (prevalence model) or Lifetime (incidence model) Cost: | Annual |
| 6. Perspective of Cost Estimate (Total society, Federal budget, or Other) | Total society |
| 7. Approach to Estimation of Indirect Costs | Human capital |
| | |
| 8. <u>Source of Cost Estimate:</u> | |

Updated estimates based on draft report prepared for NIAAA by The Lewin Group, October, 1999. Underlying estimates reported in Harwood, H.; Fountain, D.; and Livermore, G. *The Economic Costs of Alcohol and Drug Abuse in the United States: 1992*. Report prepared for the National Institute on Drug Abuse and the National Institute on Alcohol Abuse and Alcoholism, National Institutes of Health. NIH Publication No. 98-4327. Bethesda, MD: National Institutes of Health, 1998. Full text available at <http://www.nida.nih.gov/EconomicCosts/Index.html>

10. Other Indicators of Burden of Disease:

Prevalence of alcohol dependence and/or abuse: 13.8 million adults in 1992 (7.4% of population age 18+). Source: Grant, B.F.; Harford, T.C.; Dawson, D.A.; Chou, P.; Dufour, M.; and Pickering, R. Prevalence of DSM-IV Alcohol Abuse and Dependence: United States, 1992. *Alcohol Health & Research World* 18(3): 243-248, 1994.

People with an alcoholic family member: 98 million adults in 1992 (52.9% of population ages

18+). Source: Dawson, D.A., and Grant, B.F. Family History of Alcoholism and Gender: Their Combined Effects on DSM-IV Alcohol Dependence and Major Depression. *Journal of Studies on Alcohol* 59(1): 97-106, 1998.

Alcohol-attributable deaths: 110,640 in 1996. Source: Alcohol Epidemiologic Data System, National Institute on Alcohol Abuse and Alcoholism. Available at <http://silk.nih.gov/silk/niaaa1/database/qf.htm>

Years of potential life lost to age 65 (YPLL-65): 1,482,998 (average of 13.4 years lost per death). Source: Unpublished data from Alcohol Epidemiologic Data System, National Institute on Alcohol Abuse and Alcoholism.

10. Commentary:

Estimates of economic costs attempt to capture the magnitude and the multidimensional nature of the societal burden that results from alcohol abuse and alcoholism. The overall cost estimate comprises component estimates for health care costs, productivity losses, and various additional costs, including those associated with alcohol-related crime and motor vehicle crashes. Health care costs include both the costs of treating alcohol use disorders and the costs of treating the wide range of medical consequences of alcohol consumption. Productivity losses encompass losses due to alcohol-related deaths, earnings impairment due to alcohol-related illness, and additional productivity losses due to alcohol-related crime.

More than two-thirds of the estimated costs of alcohol abuse are attributed to lost productivity, with most resulting either from alcohol-related illness (47.5 percent) or premature death (19.8 percent). Most of the remaining estimated costs of alcohol abuse are in the form of health care expenditures to treat alcohol use disorders and the medical consequences of alcohol consumption (14.3 percent), property and administrative costs of alcohol-related motor vehicle crashes (8.5 percent), and various costs of alcohol-related crime (8.9 percent).

The study by Harwood *et al.* estimated the economic costs of alcohol abuse for 1992 and projected these estimates forward to 1995 by adjusting for inflation and population growth in the intervening period. A recent update projected the estimates forward to 1998 using similar techniques. Health care costs comprise a slightly larger share of the total in the 1998 projection, reflecting the continuing rise in the relative prices of health care services over the 1992-1998 period. Similarly, productivity losses represent a slightly smaller share of the total in the 1998 update because wages have grown somewhat more slowly than the general price level. The modest decline in the share of costs represented by property and administrative costs of alcohol-related crashes reflects the actual decline in the number of alcohol-related crashes through most of this decade.

Health care expenditures for treatment of alcohol abuse and dependence and for treatment of the medical consequences of alcohol consumption represent a modest fraction of the total costs of alcohol abuse. These costs were estimated using a wide variety of data sources, reflecting both the pervasive health consequences of alcohol consumption and the diverse health care system in the United States. Hospital costs associated with the medical consequences of alcohol

consumption were estimated based on the proportions of deaths from various diseases and other health conditions considered attributable to alcohol.

Productivity losses due to alcohol-related illness were estimated using data from the 1992 National Longitudinal Alcohol Epidemiologic Survey (NLAES), a nationally-representative data set designed to estimate the incidence and prevalence of alcohol abuse and dependence according to well-defined clinical criteria. Regression models of lost earnings and excess unemployment among individuals with a history of alcohol dependence were adapted in a microsimulation framework designed to account for demographic differences between those with a history of alcohol dependence and those who were never alcohol-dependent. Statistically significant losses were found only for males and only for reduced earnings, not for excess unemployment. A key finding of interest was that earnings decrements among males with a history of alcohol dependence were much larger for those who began drinking before reaching age 15 than for those who began drinking later.

Productivity losses due to premature deaths attributable to alcohol consumption were estimated based on the proportions of deaths from various causes that are caused by alcohol consumption. These include large fractions of the deaths from liver cirrhosis and other liver diseases and smaller proportions of deaths from various injuries, drownings, fires, certain cancers of the digestive tract, homicides, suicides, diabetes, and stroke. Productivity losses were estimated as the present discounted value of future earnings lost due to these premature deaths. The reported estimate is based on a 6 percent discount rate; use of a 3 percent discount rate instead would have increased the estimate of mortality costs by about 46 percent.

Estimates of the costs associated with Fetal Alcohol Syndrome (FAS) include both health care costs and productivity losses attributable to FAS. FAS is a characteristic pattern of birth defects resulting from prenatal alcohol exposure whose symptoms include pre- and postnatal growth retardation and central nervous system anomalies such as developmental delays, mental retardation, and skull or brain malformations. Of the estimated health care costs of FAS, more than 90 percent is accounted for by the costs of providing needed home and residential care to adult survivors of FAS with moderate to severe mental retardation, and the costs of special education for children and adolescents with the range of mental impairments that are associated with FAS. The 1992 estimate for FAS can be projected forward to 1998 using the same approach that was applied to other cost components, yielding an estimated cost of FAS of \$4 billion for 1998, including \$2.8 billion in health care costs and \$1.3 billion in productivity losses.

Other components of the overall estimate include the costs of alcohol-related crime and property damage, insurance administration, and legal costs associated with alcohol-related motor vehicle crashes and fires. Crime costs encompass expenditures for criminal justice system administration and private legal defense as well as productivity losses sustained by victims of alcohol-related crime and by incarcerated perpetrators of such crimes.

Although estimates of the economic costs of alcohol abuse attempt to be as comprehensive as possible, and although the magnitude of cost revealed in these estimates is staggeringly large, there are important aspects of the burden of alcohol problems that are not captured in these estimates. Beyond the effects on health and economic productivity, alcohol problems exact a

heavy toll in terms of human suffering. Failed marriages, anguished families, stalled careers, criminal records, and the pain of loved ones killed or disabled from alcohol-related causes are aspects of this suffering that cannot be accounted fully in a cost-of-illness framework. In addition, secondary effects of alcohol problems on economic market outcomes are not reflected in estimates of the economic cost of alcohol abuse. For example, alcohol problems contribute to the likelihood of automobile crashes, and hence raise insurance premiums. As a result, fewer goods and services can be purchased by consumers who also purchase automobile insurance. Similarly, alcohol problems are known to contribute to workplace accidents and absenteeism, thereby increasing the cost of labor to businesses, with potential effects on total employment and production over and above the effects on individuals' productivity. The overall magnitude of such secondary economic consequences of alcohol problems is unknown, but the aggregate effect could be substantial.